

Beryllium Disease

What is beryllium?

A metal found as a component of coal, oil, certain rock minerals, volcanic dust and soil. It is not harmful when held or touched. However, beryllium particles are a health hazard when they become air born in the process of cutting, grinding or otherwise working with it.

What is beryllium disease?

Beryllium disease refers to various conditions that result from exposure to beryllium and its compounds or alloys. Exposure to beryllium most often occurs in mining, extraction and in the processing of alloy metals containing beryllium.

More common types

- Beryllium sensitization - a person's immune system responds to the exposure
- Chronic beryllium disease - a slowly progressive respiratory disease that is treatable, but cannot be cured. It involves scarring of the lungs and may be fatal. It can take years to develop after the first beryllium exposure.

Less common type

- Acute beryllium disease - has a sudden, rapid onset during or following high levels of exposure. Improved workplace controls have almost eliminated this form of the disease.

How can beryllium disease be prevented?

- Use engineering controls to reduce exposure, such as
 - » Modifying work processes and installing enclosures
 - » Automating work procedures
 - » Installing local exhaust ventilation systems
- Use individual preventive measures, such as
 - » Wearing protective clothing and respiratory protective devices
 - » Showering and changing clothes at the end of the work day

WARNING

Inhaling beryllium dust or fumes may cause serious, chronic lung disease, or cancer. It can be fatal.

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Symptoms

Beryllium Sensitization

- No symptoms
- Positive blood test for sensitivity

Acute Beryllium Disease

- Inflammation of the lung, windpipe, skin, eyes, nose and/or throat

Chronic Beryllium Disease

- Nonproductive cough
- Breathing difficulties
- Chest pain
- General weakness
- Loss of appetite
- Weight loss
- Formation of masses of tissue in the lungs (granulomas)
- Possible formation of granulomas in the skin, liver, spleen, kidney, bone, nervous system, skeletal muscles, lymph glands or wall of heart

Treatment

Beryllium Sensitization

- No treatment

Chronic beryllium disease

- There is no known cure, but with treatment, progress of the disease may be slowed.
- Treatment goals:
 - » Improve symptoms
 - » Improve oxygen levels in bloodstream (Oxygen therapy)
 - » Protect lungs from further damage

Resources/References

- Canada's national Occupational Health and Safety Resource. www.ccohs.ca/oshanswers/diseases/beryllium.html
- National Jewish Center www.nationaljewish.org/disease-info/diseases/occ-med/beryllium/about/beryllium/index.aspx
- Day, GA, Stefaniak, AB, Weston, A, Tinkle, SS. (2006) Beryllium exposure: dermal and immunological considerations. *Int Arch Occup Environ Health*. 79:161-164